

We claim:

1. A bipolar junction transistor, comprising:

a buried collector layer;

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a counterdoped collector region adjacent to said buried collector layer;

a base region adjacent to said counterdoped collector region; and

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an emitter region adjacent to said base region.

2. The bipolar junction transistor of claim 1 wherein at

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least one of the dopant species in said counterdoped collector region has a dopant concentration of greater than $0.5 \times 10^{17} \text{ cm}^{-3}$.

3. The bipolar junction transistor of claim 1 wherein the

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distance from the edge of said buried collector layer which is adjacent to said collector region to the edge of said base region which is adjacent to said collector region is less than 1500 angstroms.

4. The bipolar junction transistor of claim 1 wherein the base region is silicon germanium.

5. A bipolar junction transistor, comprising:

a buried collector layer;

5

a collector region adjacent to said buried collector layer wherein said collector region contains at least $0.5 \times 10^{17} \text{ cm}^{-3}$ scattering centers;

10 a base region adjacent to said collector region; and

an emitter region adjacent to said base region.

6. The bipolar junction transistor of claim 5 wherein said

15 scattering centers are a species selected from the group consisting of boron, aluminum, gallium, indium, carbon, phosphorous, arsenic and antimony.

7. The bipolar junction transistor of claim 5 wherein the

20 distance from the edge of said buried collector layer which is adjacent to said collector region to the edge of said base region which is adjacent to said collector region is less than 1500 angstroms.

8. The bipolar junction transistor of claim 5 wherein the
base region is silicon germanium.

9. The bipolar junction transistor of claim 5 wherein the
5 scattering centers of said collector region are neutral
scattering centers.